



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,218	07/24/2002	Marc Schrader	10191/2211	1114

26646 7590 02/05/2007
KENYON & KENYON LLP
ONE BROADWAY
NEW YORK, NY 10004

EXAMINER

FILE, ERIN M

ART UNIT	PAPER NUMBER
----------	--------------

2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/088,218

Applicant(s)

SCHRADER ET AL.

Examiner

Erin M. File

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 7/24/2002.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d) based upon an application filed in Germany on September 17, 1999. A claim for priority under 35 U.S.C. 119(a)-(d) cannot be based on said application, since the United States application was filed more than twelve months thereafter.

Response to Amendment

2. The claims submitted 7/24/2002 should have been submitted as a separate paper as required by 37 CFR 1.4(c). The paper has been entered. However, all future correspondence must comply with 37 CFR 1.4.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the details of the function of elements 1-40 in figures 1-3 as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an

Art Unit: 2611

amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 13, 14, 16, 17, and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brajal et al. (U.S. Patent No. 5,598,436) in view of the applicant's admitted prior art.

Claim 13, Brajal discloses:

- modulating the wireless signal using digital phase modulation (Brajal, fig. 12, MOD);

Art Unit: 2611

- scanning the wireless signal after modulation to generate a plurality of scanned values of the modulated wireless signal (Brajal, fig. 12, 21);
- determining at least one amplitude value of the wireless signal using the plurality of scanned values (converter 22 converts the IQ values to polar coordinates of amplitude and phase, R and ψ , col. 5, lines 63-64);
- comparing the at least one amplitude value to a predefined threshold to obtain a correction signal;
- determining a phase of the wireless signal (converter 22 converts the IQ values to polar coordinates of amplitude and phase, R and ψ , col. 5, lines 63-64);
- providing the correction signal with the phase of the wireless signal (col. 6, lines 15-19);
- pre-equalizing the corrected wireless signal (Brajal, fig. 9, 12, 20);
- converting the pre-equalized wireless signal into an analog wireless signal using at least one digital-analog converter (Brajal, fig. 12, 27);
- amplifying the analog wireless signal (Brajal, fig. 12, HPA); and
- transmitting the amplified wireless signal (Brajal, title).

Brajal fails to disclose subtracting the correction signal from the wireless signal after providing the correction signal with the phase of the wireless signal to reduce one of the at least one amplitude value of the wireless signal that lie above the predefined threshold to a value of the threshold. However, the applicants admitted prior art of record discloses subtracting the correction signal from the wireless signal after providing the correction signal with the phase of the wireless signal to reduce one of the at least

Art Unit: 2611

one amplitude value of the wireless signal that lie above the predefined threshold to a value of the threshold (specification of instant application, lines 15-20). Because the prior art discloses this method has the advantage of reducing out-of-band radiation caused by the non-linearity of the transmitter (specification of instant application, lines 15-16), it would have been obvious to one skilled in the art at the time of invention to incorporate the correction signal as disclosed by the applicant admitted prior art of record into the invention of Brajal.

Claims 14, 20, Brajal further discloses a correction signal is subtracted from the wireless signal a plurality of times, the correction signal being re-determined for each subtraction (see fig. 12, which shows an adaptive embodiment of the corrective predistortion circuit).

Claims 16, 21, the admitted prior art of record further discloses the correction signal is subtracted from the wireless signal until ones of the at least one amplitude of the corrected wireless signal are at most equal to the predefined threshold (specification of instant application, lines 15-20, the correction signal is zero when the threshold is met).

Claims 17, 22, Brajal further discloses wherein a number of times the correction signal is to be subtracted from the wireless signal is predefined (Brajal, when the system is in operating in fixed mode as shown in fig. 11, the number of times the correction signal is subtracted is a predefined value of 1).

Claim 19, Brajal discloses:

- a modulator to perform orthogonal frequency division multiplexing (OFDM) and a phase modulation on a digital signal to be transmitted to form a modulated

OFDM signal (Brajal, fig. 12, MOD, col. 4, lines 60-65 discloses OFDM with 16 QAM, paragraph 2 p. 6 of specification of instant application defines QAM as one type of digital phase modulation);

- a processor to scan the modulated OFDM signal to generate a plurality of scanned values (Brajal, fig. 12, 21), determine at least one amplitude value of the modulated OFDM signal (converter 22 converts the IQ values to polar coordinates of amplitude and phase, R and ψ , col. 5, lines 63-64), determine a phase of the scanned modulated OFDM signal (converter 22 converts the IQ values to polar coordinates of amplitude and phase, R and ψ , col. 5, lines 63-64)
- a pre-equalizer to pre-equalize the modulated OFDM signal after the correction signal is subtracted from the modulated OFDM signal (Brajal, fig. 9, 12, 20);
- at least one digital/analog converter to convert the modulated OFDM signal into an analog signal (Brajal, fig. 12, 27).

Brajal fails to disclose subtracting the correction signal from the wireless signal after providing the correction signal with the phase of the wireless signal to reduce one of the at least one amplitude value of the wireless signal that lie above the predefined threshold to a value of the threshold. However, the applicants admitted prior art of record discloses comparing at least one amplitude value of the modulated OFDM signal to a predefined threshold to form a correction signal, provide the correction signal with the phase of the modulated OFDM signal, and subtract the correction signal from the modulated OFDM signal after providing the correction signal with the phase of the modulated OFDM signal to reduce ones of the at least one amplitude value of the

Art Unit: 2611

modulated OFDM signal that lie above the predefined threshold to a value of the threshold (specification of instant application, lines 15-20). Because the prior art discloses this method has the advantage of reducing out-of-band radiation caused by the non-linearity of the transmitter (specification of instant application, lines 15-16), it would have been obvious to one skilled in the art at the time of invention to incorporate the correction signal as disclosed by the applicant admitted prior art of record into the invention of Brajal.

6. Claims 15 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brajal et al. (U.S. Patent No. 5,598,436) and the applicant's admitted prior art as applied to claims 14 and 21 above, and further in view of Cox et al. (U.S. Patent No. 5,732,333).

Claims 15, 23, neither Brajal nor the applicant's admitted prior art disclose the correction signal includes Gauss pulses, however, Cox discloses the use of Gauss pulses in signal correction (col. 10, lines 55-65). Cox further discloses this use of Gaussian signals has the advantage of reduces transients in the power supply and spurious output signals from the power amplifier (col. 10, lines 60-61). Because of this advantage, it would have been obvious to one skilled in the art at the time of invention to incorporate the use of Gaussian correction as disclosed by Cox into the combined invention of Brajal, the applicant's admitted prior art.

Art Unit: 2611

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brajal et al. (U.S. Patent No. 5,598,436) and the applicant's admitted prior art as applied to claim 16 above, and further in view of Chiesa et al. (U.S. Patent No. 5,524,286).

Claim 18, neither Brajal, nor the applicant's admitted prior art disclose the wireless signal is overscanned, however, Chisea discloses oversampling a signal for reducing linear distortion (col. 4, lines 21-27). Because Chisea discloses this has the advantage of reducing convergence time (col. 4, lines 26-27), it would have been obvious to one skilled in the art at the time of invention to incorporate the oversampling as disclosed by Chisea into the combined invention of Brajal, the applicant's admitted prior art.

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brajal et al. (U.S. Patent No. 5,598,436), the applicant's admitted prior art, and Cox et al. (U.S. Patent No. 5,732,333) as applied to claim 23 above, and further in view of Chiesa et al. (U.S. Patent No. 5,524,286).

Claim 24, neither Brajal, nor the applicant's admitted prior art, nor Cox disclose the wireless signal is overscanned, however, Chisea discloses oversampling a signal for reducing linear distortion (col. 4, lines 21-27). Because Chisea discloses this has the advantage of reducing convergence time (col. 4, lines 26-27), it would have been obvious to one skilled in the art at the time of invention to incorporate the oversampling as disclosed by Chisea into the combined invention of Brajal, the applicant's admitted prior art, and Cox.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 14-18 and 20-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

11. Claims 14 and 20 recite an iterative process for determining the signal. However, although the specification discusses iteratively removing the correction signal from the received scanned signal until the correction signal is zero, there is nothing in the specification is show how the signal is fed back through the correction process, nor is there any iterative process shown in the drawings. Therefore claims 14-18 and 19-24 are not enabled.

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 13-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 2611

14. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. An example of this can be found in Claims 13, 16, 19, and 21, the recitation of "ones of the at least one" is unclear. Another example is the use of the term "scanning" in the claims, which is not clear in its intended meaning. The term "overscanning" is not well known in the art, and the examiner has interpreted the terms "scanning" and "overscanning" as "sampling" and "oversampling".

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin M. File whose telephone number is (571)272-6040. The examiner can normally be reached on M-F 1:00PM-9:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on (571)272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2611

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Erin M. File

EMF

1/24/2007

David C. Payne
DAVID C. PAYNE
PRIMARY PATENT EXAMINER